Methods: The 2009–10 Victorian Health Monitor was a state-wide cross-sectional health measure-ment survey of adults (18–75 years) from 50 randomly selected Census collection districts throughout Victoria. A total of 3,506 completed 1–4 non-consecutive 24-hour recalls, were analysed using AUSNUT 2007. Foods were classified as DFs based on the Australian Health Survey definition.
Results: Overall, 27% of foods consumed were classified as DFs. Total energy intake was 11.3 MJ (95%CI: 11.1–11.6 MJ) for males and 8.4 MJ for females (95%CI: 8.2–8.7 MJ, $p < 0.05$). Males (35.9% 95%CI: 34.9–36.9%) consumed significantly more energy from DFs than females (31.5%, 95%CI: 30.4–32.6%, $p < 0.05$), particularly more sugar (44.1% 95%CI: 42.4– 45.9% *vs*. 40.3%, 95%CI: 38.9–41.8%, $p < 0.05$) and sodium (38.3%, 95%CI: 37.4–39.2% *vs*. 34.7%, 95%CI: 33.5–36%, $p < 0.05$).
Conclusions: These data suggest Victorian adults are not limiting their consumption of DFs in line with guidelines and there is a need for public health strategies to support limiting DF consumption. Continued monitoring of food consumption by comprehensive population dietary surveys are required in order to determine the success of public health approaches to limit the consumption of DFs.
Funding source(s): Department of Health and Human Services, Victoria.

ESTIMATING DAIRY FOOD INTAKE: DIVERGENCE BETWEEN RESULTS FROM NATIONAL NUTRITION SURVEYS AND DAIRY INDUSTRY ASSESSMENTS

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Background/Aims: The 2011/12 Australian Health Survey indicated mean intake of the dairy food group is below the minimum recommended level for all population groups. With the timing of the next national nutrition survey unknown, on-going, regular monitoring of dairy intake is needed.
We aimed to investigate use of an alternative source of data to monitor dairy consumption between national nutrition surveys.
Methods: Domestic consumption of milk, cheese and yoghurt was calculated for each year using company sales data from all major dairy companies, Australian Bureau of Statistics commodity import data and a specialty cheese survey. This captured both direct consumption (e.g. supermarket dairy food purchases) and indirect consumption (e.g. dairy foods as ingredients in other foods). Adjustments were made for waste (29%). These industry-derived figures were compared with intake data for these foods collected in the 1995/96 and 2011/12 national nutrition surveys (with the former concorded to the latter).
Results: Industry figures suggest that, between 1995/6 and 2011/2, there was a small increase of 0.2 serves/day in per capita milk, yoghurt and cheese intake, from 1.4 to 1.6 serves/d. In contrast, results from the national nutrition surveys suggest a decline of 0.2 serves/day during this period, from 1.5 to 1.3 serves/d. Some of this variation may be due to differences in coding between the nutrition surveys, particularly in relation to cheese contained in mixed dishes, and misreporting.
Conclusions: The divergence in results highlights the need for on-going, regular, national dietary intake monitoring using consistent methodology.
Funding source(s): Dairy Australia.

FACTORS INFLUENCING ROTATING SHIFT WORKERS EATING HABITS: A CROSS-SECTIONAL STUDY OF MELBOURNE METROPOLITAN FIRE FIGHTERS

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Background/Aims: Shift workers are at increased risk of chronic conditions including obesity, cardiovascular diseases and type 2 diabetes. Dietary factors may contribute to the onset and/or development of disease risk. Shift work alters meal timing, with food often consumed in conflict with normal circadian rhythms. The aim of this study was to understand factors affecting the dietary habits of rotating shift workers during working hours.
Methods: A cross-sectional study comprising qualitative and quantitative data collection. Focus groups ($n = 6$) were undertaken with 41 Melbourne Metropolitan fire fighters who continually work a rotating roster. A subgroup of participants ($n = 19$) completed repeated 24-hour dietary recalls (two during day shift schedule and two during night shift schedule). Data were entered into FoodWorks and analysed using Wilcoxon signed-rank test; $p < 0.05$ was considered significant.
Results: The mean age (SD) and years of service was 49 years (10.2) and 24.7 (10.8) years, respectively. Thematic analysis revealed four key factors impacting dietary choices: shift schedule; co-worker attitudes and food choices; availability of time and the accessibility of food; concern and awareness of health. Total 24 hour energy intake during day shift schedule [median (IQR) 11419 (3466) kJ] was similar to during night shift schedule [10350 (4420) kJ, $p = 0.295$]. A greater proportion of snacks comprised discretionary food items (46% *vs.* 33%) during night shift schedule compared with day shift schedule.
Conclusions: There are specific shift-related factors that influence food choices, which need to be considered when developing dietary recommendations for shift workers.
Funding source(s): N/A.

CONSTRUCTION WORK ENVIRONMENT INFLUENCES ON NUTRITION AND BEVERAGE INTAKE

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Background/Aims: Industrial workforces are at higher risk of preventable chronic diseases than the general population. The aim of this study was to investigate influences on food and beverage intake by construction workers and managers and potential levers of health promotion in construction food environment.
Methods: Qualitative semi structured focus groups/interviews were conducted with 26 construction workers at 5 urban construction sites in Brisbane, Australia. Questions were asked about: nutrition and beverage intake onsite; the impact of working hours and breaks on intake; any perceptions of effects of food and beverages on safety and productivity and site influences and barriers/facilitators for consumption. Managers were also asked about their role and any perceived responsibilities with regards to beverage intake, nutrition and safety onsite. Thematic analysis and cross-checks of themes between three researchers was conducted.
Results: Formulated caffeinated beverage consumption was considered a safety concern by most occupational health and safety (OHS) managers and were perceived to effect hydration and pose unique risks. Nutritional intake was considered separate to beverage consumption and outside of the OHS role. Younger ages and long working hours were perceived as influences on consuming FCB and less healthy food. Site vending machines were considered as key influences on beverage and nutritional intake on worksites.
Conclusions: Formulated caffeinated beverage intake is considered a potential safety concern in hot climates on construction sites. Using beverage intake as a lever for nutritional change on industrial worksites may be efficacious.
Funding source: Department of Justice and the Attorney-General, Queensland Government.

INTAKE AND FOOD SOURCES OF ADDED SUGAR IN THE AUSTRALIAN POPULATION

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Background/Aims: There are no published data regarding the current added sugars intake and major food sources contributing to added sugars of the Australian population. The latest study on this topic was based on

the 1995 Australian National Nutrition Survey (NNS) conducted by Cobiac *et al.* in 2003. We therefore aim to examine the added sugars intake of participants of the 2011-13 National Nutrition and Physical Activity Survey (NNPAS), and to identify the main food sources contributing to their added sugars intake.
Methods: Participants, aged 2–71+ years, who provided one 24 hour recall in the NNPAS were included. A final dataset of 8332 participants was analysed. Added sugar content of each food item was assigned using a previously published method. Food groups contributing to the added sugars intake were described by age group and sex.
Results: The weighted mean daily added sugars intake of the participants were 60.3 (SD 52.6) g/d. Sugar sweetened beverages accounted for the greatest proportion of the added sugars intake of the Australian population, followed by sugar and spreads and cake and biscuit.
Conclusions: The Australian population were having more added sugars than recommendation. Efforts on reducing added sugars intake should be focused on these energy dense nutrient poor foods.
Funding source(s): N/A.

NUTRITIONAL ROLE OF CELLULOSE BEYOND FAECAL BULKING

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Background/Aims: Cellulosic materials are important sources of dietary fibre and are abundant in whole grains, legumes, fruits and vegetables. Apart from its nutritional importance as a bulking agent, we report additional roles of cellulose in human nutrition by limiting digestive enzyme action either by binding of enzymes on cellulose surfaces or providing a physical barrier towards the hydrolysis of entrapped macronutrients.
Methods: (i) The kinetics of inhibition of alpha amylase activity against maize starch was determined varying cellulose concentration. (ii) Cotyledon cells from legumes were isolated without using solvents, acids or bases. The diffusion of enzyme inside the cell was monitored using fluorescence labelled alpha-amylase.
Results: Kinetic analyses of alpha amylase hydrolysing maize starch in the presence of cellulose as an inhibitor using Dixon and Direct Linear plots showed marked inhibition of mixed type. The dissociation constant of the enzyme/cellulose complex was found to be 3 mg/mL. In isolated legume cells, fluorescent labelled enzymes accumulated at the outer periphery of cells and were absent inside the cells, suggesting both a binding and barrier role for cellulose. Upon removal of cellulosic physical barrier, e.g. by grinding, the rate of hydrolysis of starch in cells of legumes increased by almost 20 times.
Conclusions: The study suggests that cellulosic materials have the potential to reduce the glycaemic responses form starchy foods either by inhibiting enzyme activity through binding or providing the physical barrier limiting the access of substrate to enzymes in plant-derived foods
Funding source(s): ARC, University of Queensland.

CONCURRENT SESSION 15: MINERALS AND TRACE ELEMENTS. GENERIC LABEL VERSUS POPULAR BRANDED PRODUCTS: HOW DOES THE SODIUM STACK-UP?

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Background/Aims: Generic labelled foods are cheaper than equivalent branded products; however, there is a perception that generic foods are of poorer quality than branded, both in terms of nutritional value and taste. We compared the sodium content listed on the food packaging for various generic and branded products.
Methods: Products selected were processed foods most commonly consumed in a Tasmanian population study. Sodium content information was collected for generic foods available in three major supermarkets; Coles, Woolworths and IGA, and the major brand which occupied the greatest shelf space in each store. For each food the difference between the lowest and highest sodium content among brands was calculated as a percentage.
Results: For 21 out of 36 foods assessed, generic products (14 Woolworths, 4 Coles, 3 IGA) had the lowest sodium content. For tinned vegetables, the difference ranged from 43% (beetroot; 210 mg/100 g branded *vs.* 300 mg/100 g generic) to 2090% (tomato paste; 21 mg/100 g generic *vs.* 460 mg/100g branded). For grain foods the differences ranged from 4% (multigrain bread; 386 mg/100 g generic *vs.* 400 mg/100 g branded) to 29.9 $\times$ 10^3% (Spaghetti pasta; 0.1 mg/100 g *vs.* 30 mg/100 g both branded products). The difference in meat/fish products ranged from 44% (frozen meat pie; 335 mg/100 g generic *vs.* 481 mg/100 g branded) to 149% (tinned tuna; 193 mg/100 g generic *vs.* 480 mg/100 g branded).
Conclusions: Fifty-nine percent generic products had lower sodium (healthier) than equivalent branded products. This confirms that health labelling must be for individual brands.
Funding source(s): Tasmanian Medicare Local.

SOURCES OF SODIUM AT MEAL AND NON-MEAL TIME EATING OCCASIONS IN ADULTS: SECONDARY ANALYSIS OF AUSTRALIAN HEALTH SURVEY DATA

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Background/Aims: High sodium intake contributes to high blood pressure and poor cardiovascular health. Food and beverages contributing to dietary sodium intake at individual eating occasions are not well reported. The purpose of this study is to assess the dietary intake and food sources of sodium at meal and non-meal eating occasions in Australian adults.
Methods: The Australian Health Survey collected dietary information from Australian adults (18-85 years) in 2011-12 using 24-hour dietary recall methodology. Males and females (n = 7818, 52% female) were included in the analysis that had complete data for height and weight. Eating occasions were classified as meal time [Breakfast (includes breakfast and brunch), Lunch and Dinner] and non-meal time eating occasions. Discretionary sodium added to foods during preparation or at the table was not included.
Results: Mixed dishes where cereal is the major ingredient contributed the greatest proportion of total daily sodium intake (14.6% of total daily sodium intake). The eating occasion contributing the greatest proportion sodium on the day of the survey was dinner (33% of total daily sodium intake), followed by lunch (31%), snacks (19%) and breakfast (16%). The highest sodium density was observed at lunch (379 mg/MJ). The greatest source of sodium at non-meal times were cakes, muffins, scones and cake-type desserts.
Conclusions: Reformulation of processed foods for reduction of sodium consumption in Australians remains an important objective. Targeting food consumption at non-meal time eating occasions and foods consumed at this time may be a useful strategy in approaching reduction in individual dietary sodium intake.
Funding source(s): N/A.

ACCEPTABILITY OF REDUCED SALT BREAD IN A REMOTE INDIGENOUS AUSTRALIAN COMMUNITY

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Background/Aims: Bread is one of the biggest contributors of dietary salt in remote Indigenous communities, providing approximately 25% of all salt consumed. This study aimed to assess acceptability of reduced-sodium (salt) bread in a remote Indigenous community.
Methods: Two studies were conducted with convenience samples from a remote Indigenous community in the Northern Territory of Australia: 1) White-bread testing (WtBT; n = 62) and 2) Wholemeal-bread testing (WmBT; n = 72). For both WtBT and WmBT, three breads were tested; one regular-sodium (~400 mg/100 g) and two reduced-sodium (~350 mg/100 g; ~300 mg/100 g) variants. Triangle test was used to examine whether